FIG. 1

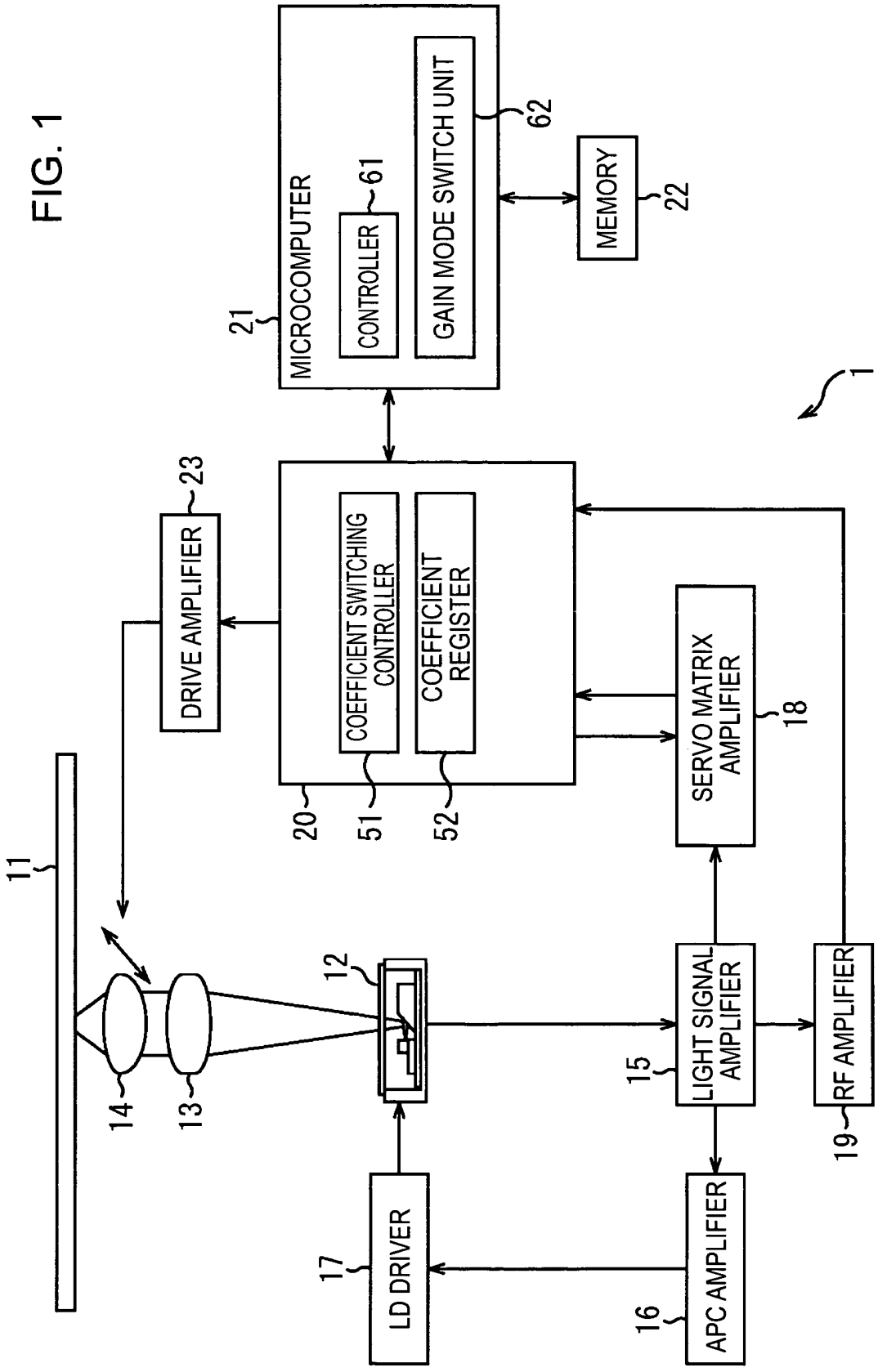

1
MICROCOMPUTER
21
CONTROLLER
61
GAIN MODE SWITCH UNIT
62
MEMORY
22
DRIVE AMPLIFIER
23
COEFFICIENT SWITCHING CONTROLLER
COEFFICIENT REGISTER
20
51
52
SERVO MATRIX AMPLIFIER
18
11
12
14
13
15
LIGHT SIGNAL AMPLIFIER
RF AMPLIFIER
19
17
LD DRIVER
16
APC AMPLIFIER

FIG. 2

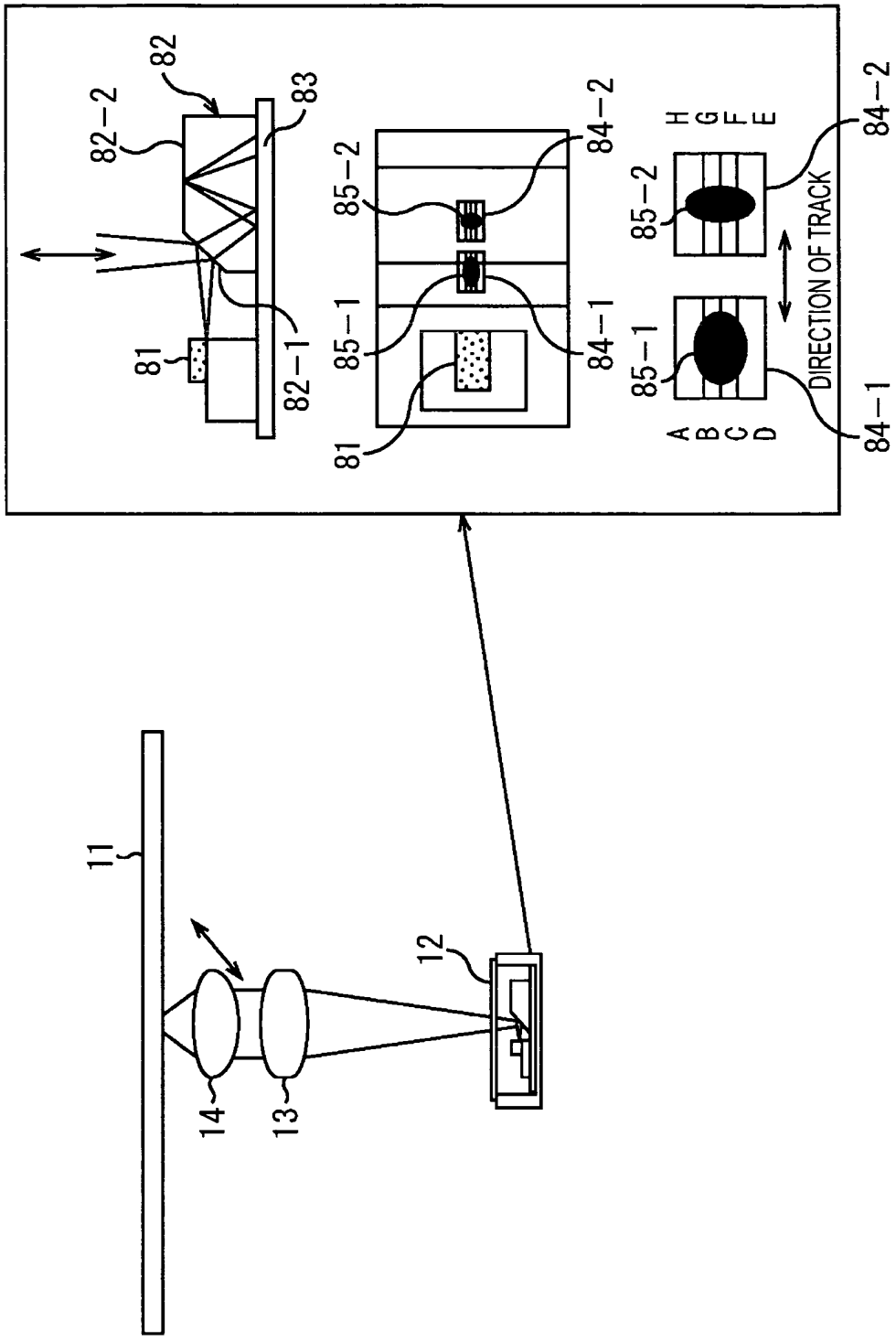

82
82-2
83
81
82-1
85-2
84-2
85-1
84-1
81
H
G
F
E
85-2
84-2
85-1
DIRECTION OF TRACK
A
B
C
D
84-1
11
12
14
13

FIG. 3

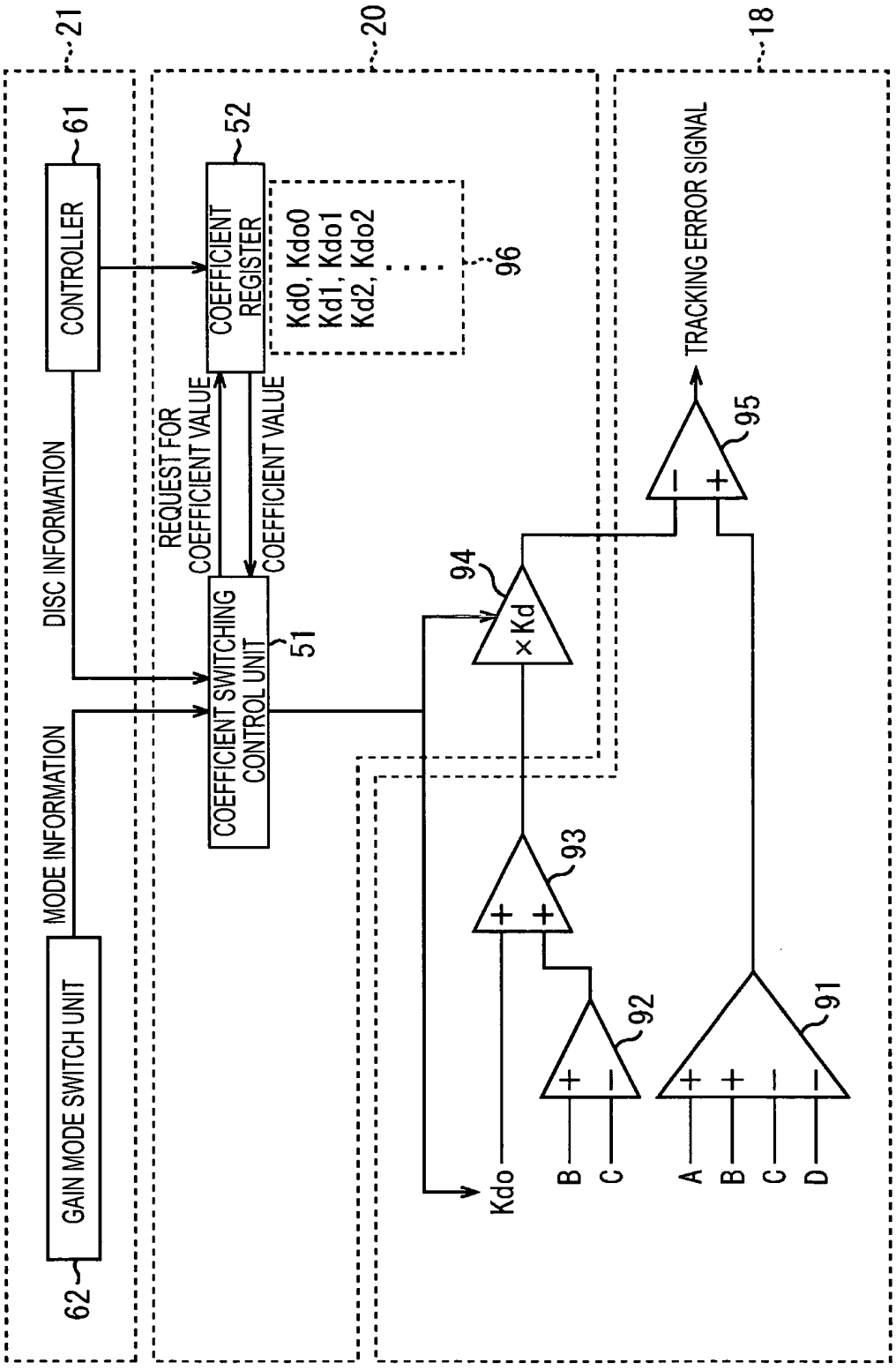

21
20
18
61
CONTROLLER
52
COEFFICIENT REGISTER
Kd0, Kdo0
Kd1, Kdo1
Kd2, Kdo2
96
TRACKING ERROR SIGNAL
95
REQUEST FOR COEFFICIENT VALUE
COEFFICIENT VALUE
DISC INFORMATION
94
× Kd
COEFFICIENT SWITCHING CONTROL UNIT
51
MODE INFORMATION
93
92
91
GAIN MODE SWITCH UNIT
62
Kdo
B
C
A
B
C
D

FIG. 4

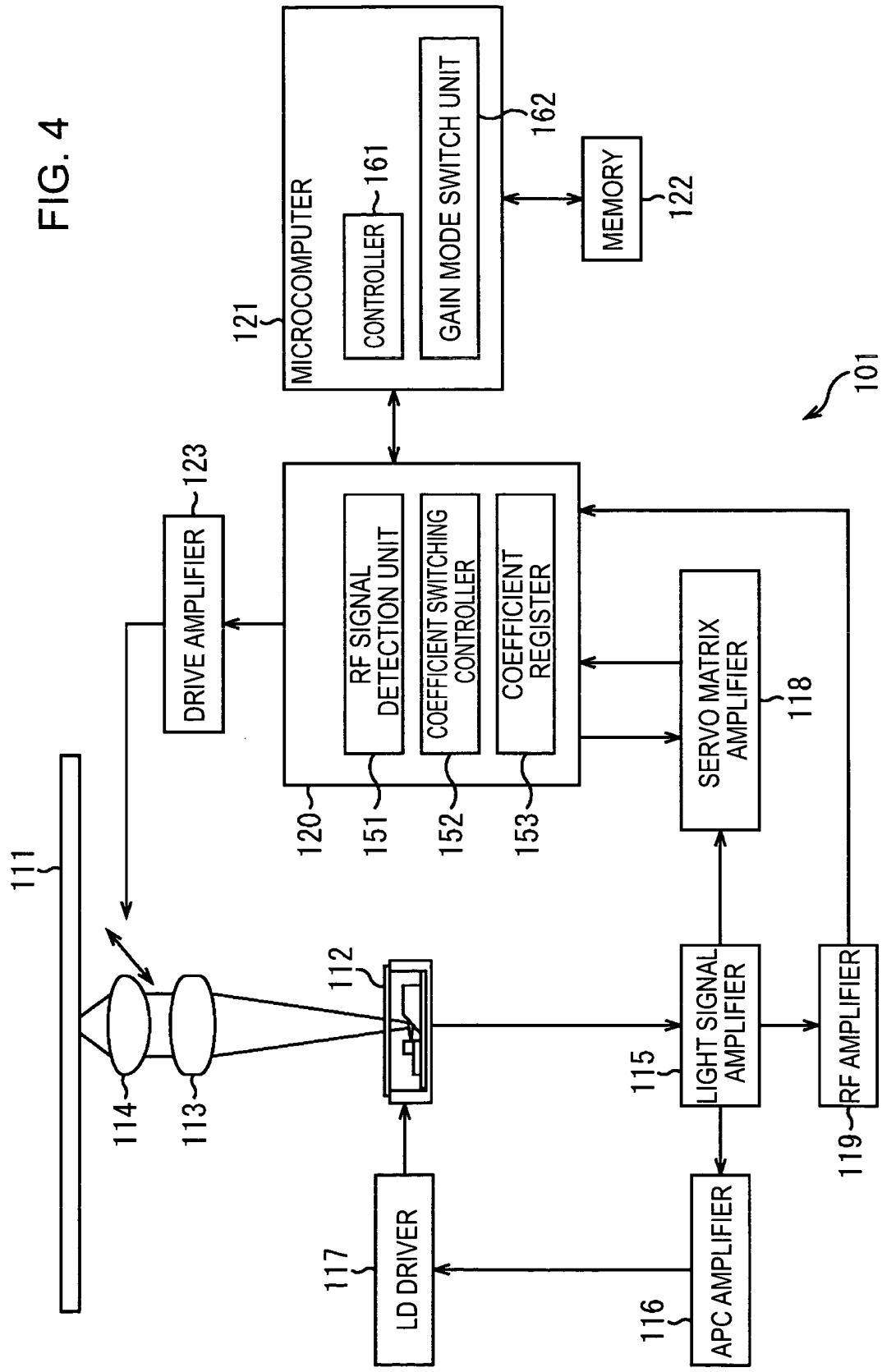

MICROCOMPUTER
121
CONTROLLER
161
GAIN MODE SWITCH UNIT
162
MEMORY
122
101
DRIVE AMPLIFIER
123
RF SIGNAL DETECTION UNIT
COEFFICIENT SWITCHING CONTROLLER
COEFFICIENT REGISTER
120
151
152
153
SERVO MATRIX AMPLIFIER
118
111
112
114
113
LIGHT SIGNAL AMPLIFIER
115
RF AMPLIFIER
119
LD DRIVER
117
APC AMPLIFIER
116

FIG. 5

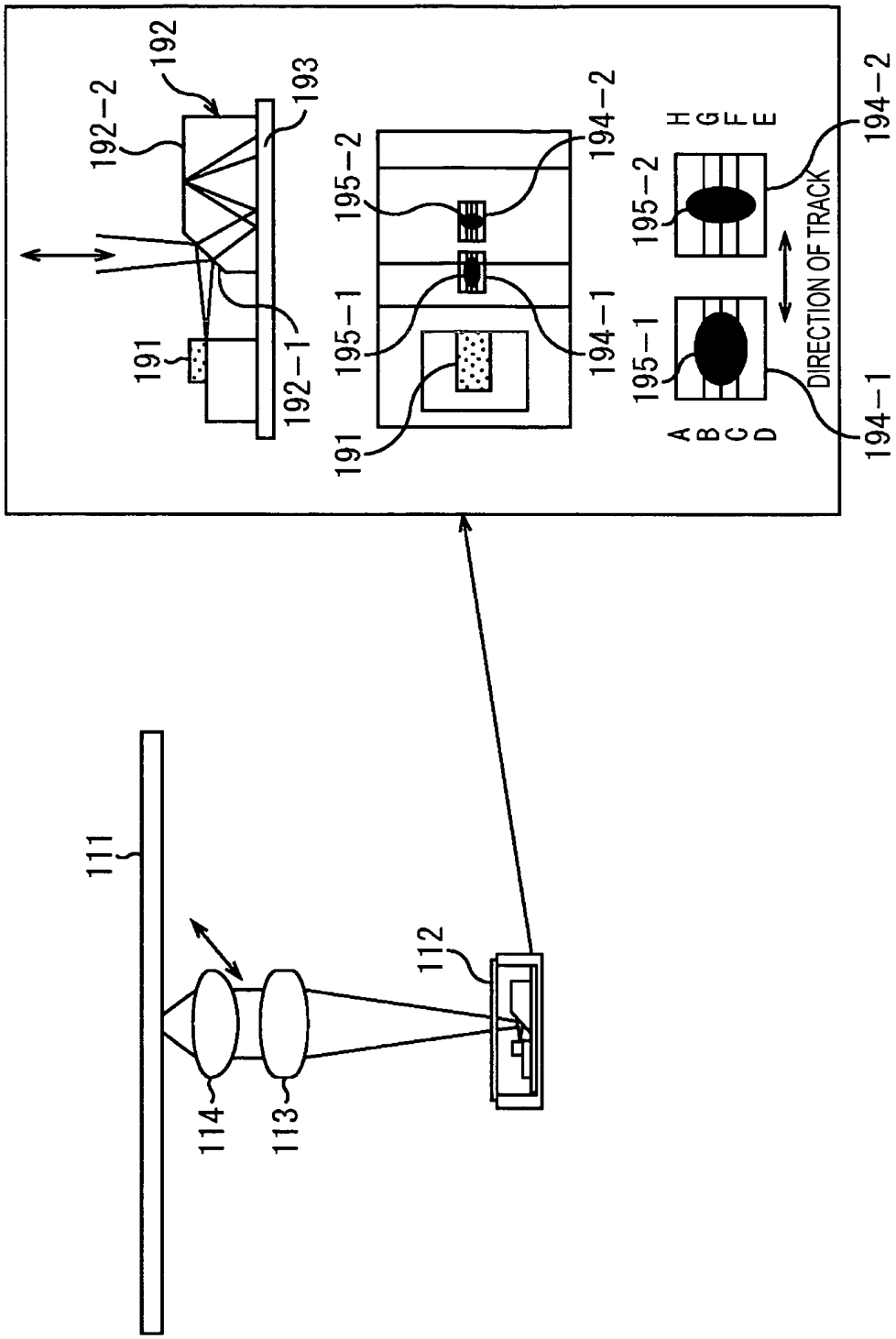

111
112
113
114
191
192
192-1
192-2
193
194-1
194-2
195-1
195-2
A
B
C
D
E
F
G
H
DIRECTION OF TRACK

FIG. 6

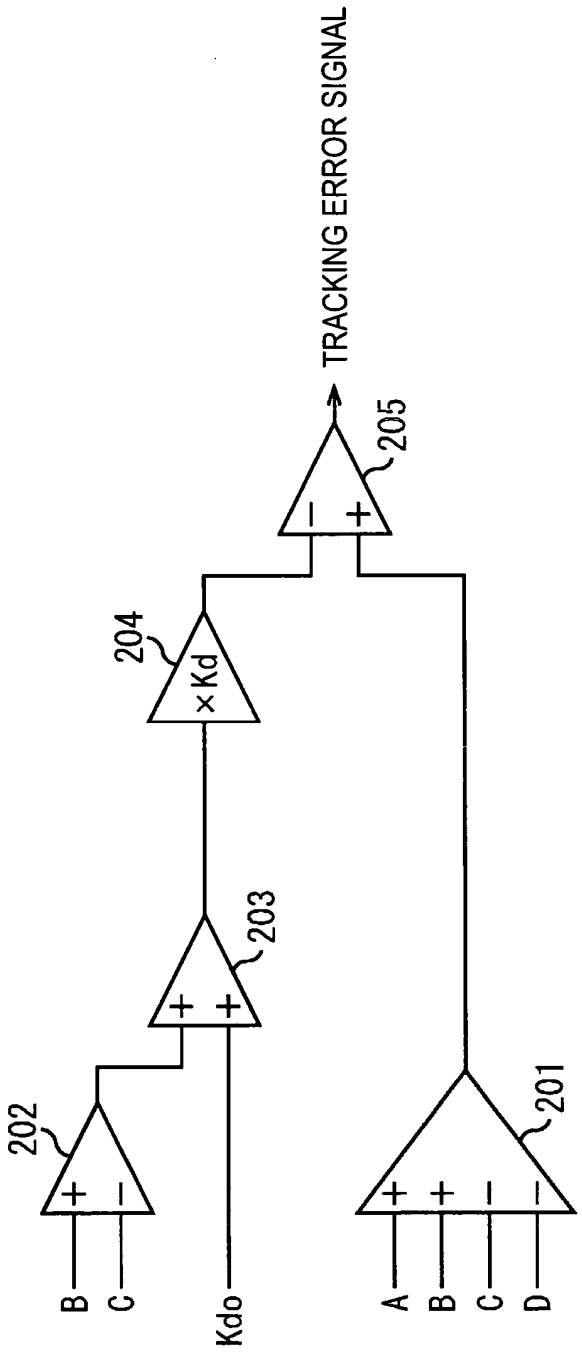


FIG. 7A

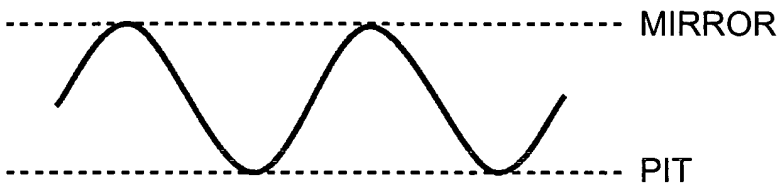


FIG. 7B

FIG. 8

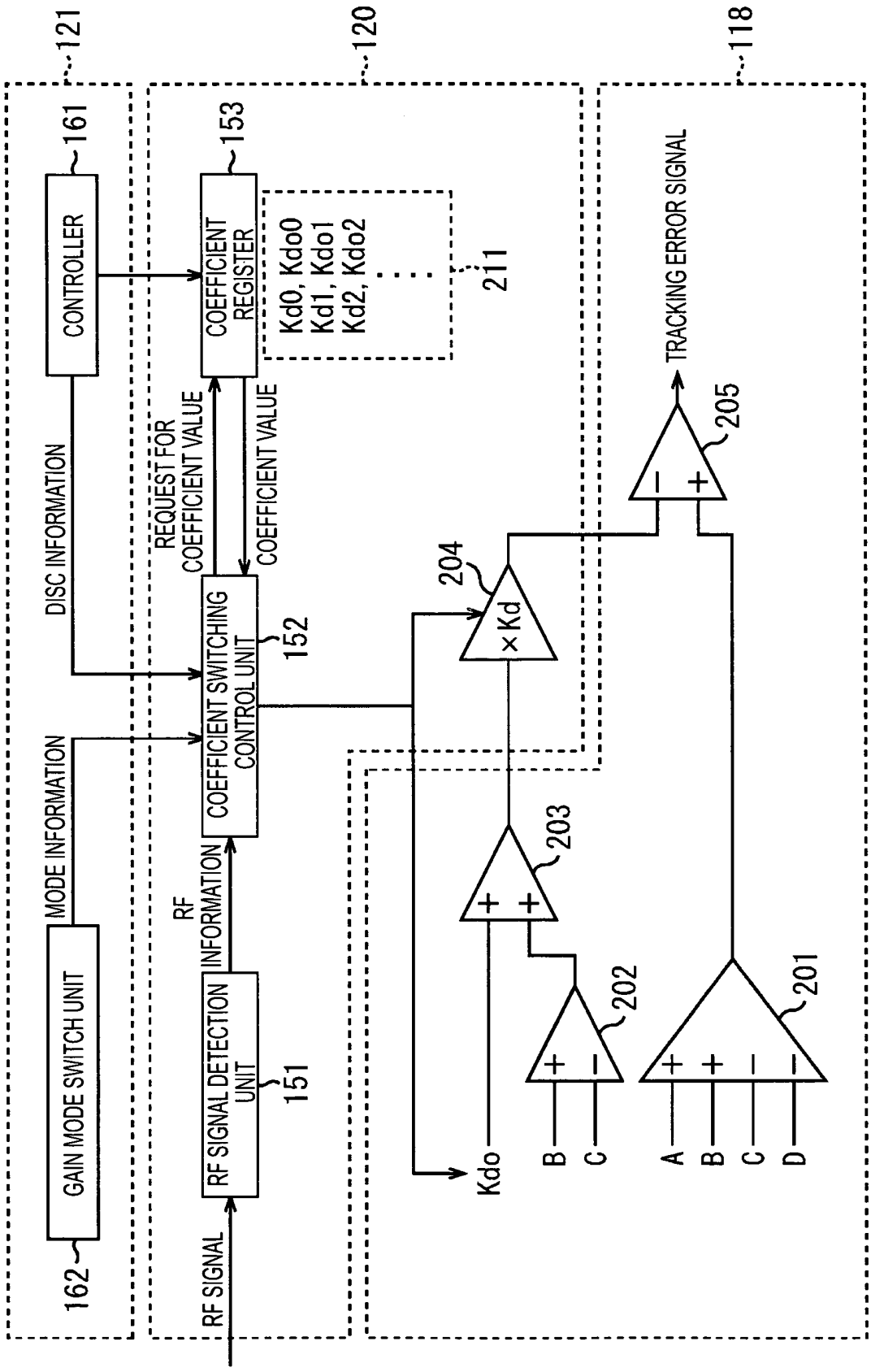

121
120
118
161
153
CONTROLLER
COEFFICIENT REGISTER
Kd0, Kdo0
Kd1, Kdo1
Kd2, Kdo2
211
DISC INFORMATION
REQUEST FOR COEFFICIENT VALUE
COEFFICIENT VALUE
TRACKING ERROR SIGNAL
205
204
× Kd
152
COEFFICIENT SWITCHING CONTROL UNIT
MODE INFORMATION
RF INFORMATION
203
202
201
GAIN MODE SWITCH UNIT
RF SIGNAL DETECTION UNIT
151
162
RF SIGNAL
Kdo
B
C
A
B
C
D

FIG. 9

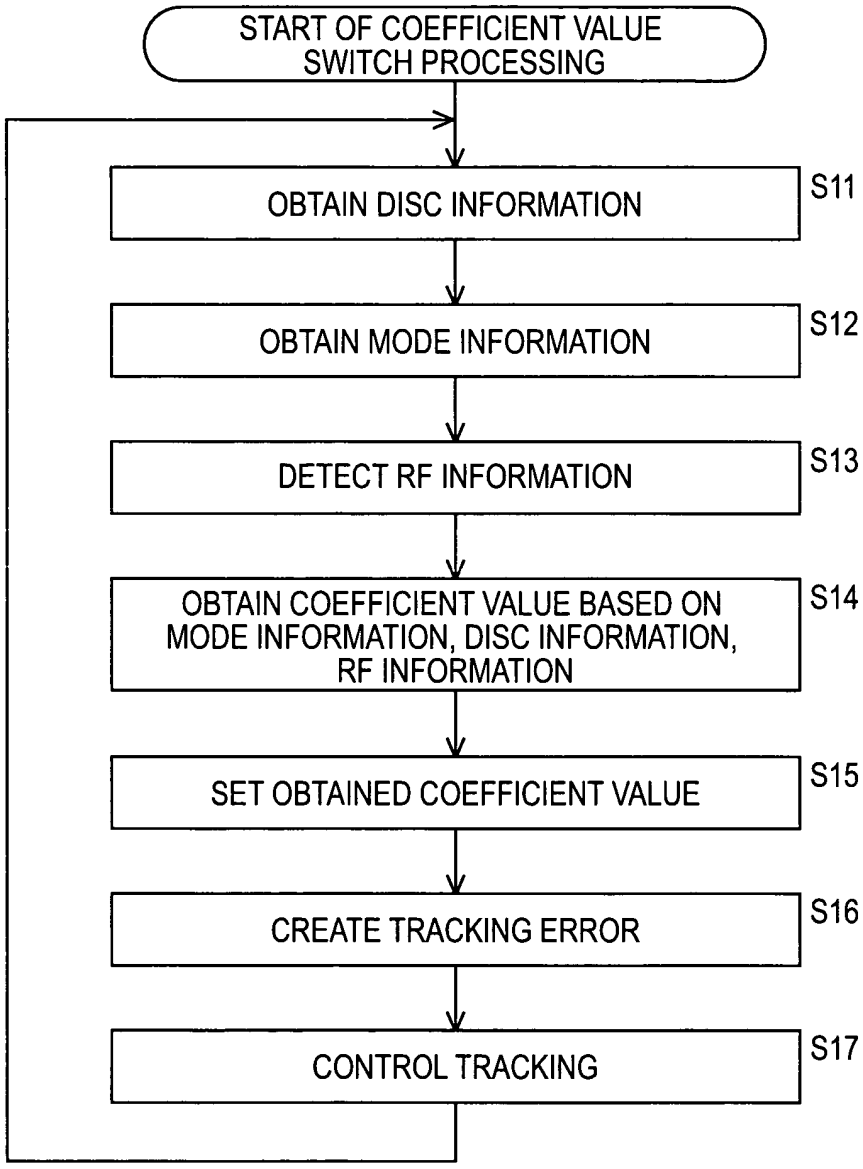

START OF COEFFICIENT VALUE SWITCH PROCESSING
OBTAIN DISC INFORMATION
S11
OBTAIN MODE INFORMATION
S12
DETECT RF INFORMATION
S13
OBTAIN COEFFICIENT VALUE BASED ON MODE INFORMATION, DISC INFORMATION, RF INFORMATION
S14
SET OBTAINED COEFFICIENT VALUE
S15
CREATE TRACKING ERROR
S16
CONTROL TRACKING
S17

FIG. 10

DISC INFORMATION	MODE INFORMATION	RF INFORMATION	COEFFICIENT VALUE	
			Kd	Kdo
DVD-R	READ	PRESENCE	Kd0	Kdo0
	READ	ABSENCE	Kd1	Kdo1
	WRITE	-	Kd2	Kdo2
DVD-RW	READ	PRESENCE	Kd3	Kdo3
	READ	ABSENCE	Kd4	Kdo4
	WRITE	-	Kd5	Kdo5
DVD+R	READ	PRESENCE	Kd6	Kdo6
	READ	ABSENCE	Kd7	Kdo7
	WRITE	-	Kd8	Kdo8
DVD+RW	READ	PRESENCE	Kd9	Kdo9
	READ	ABSENCE	Kd10	Kdo10
	WRITE	-	Kd11	Kdo11

FIG. 11

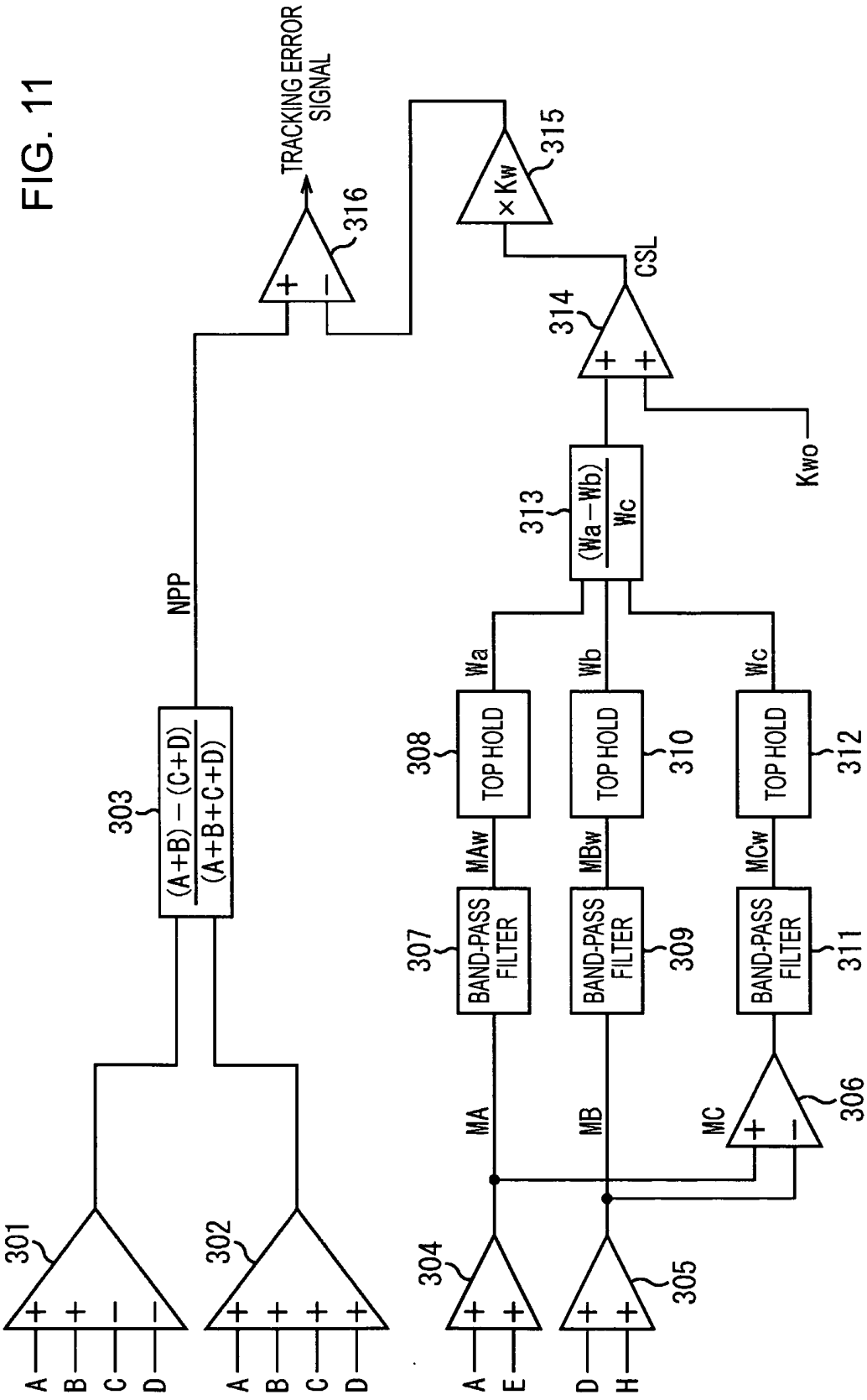
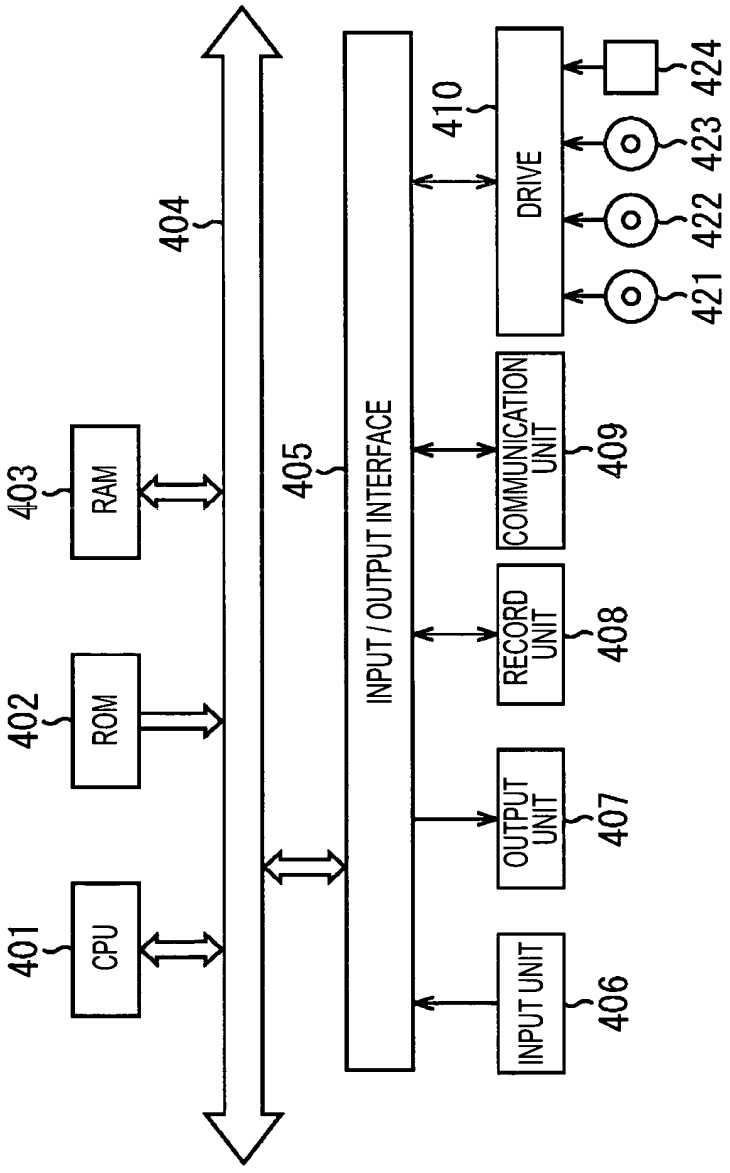

TRACKING ERROR SIGNAL
316
315
× Kw
CSL
314
Kwo
313
(Wa−Wb)/Wc
NPP
303
(A+B)−(C+D)/(A+B+C+D)
Wa
Wb
Wc
308
TOP HOLD
310
TOP HOLD
312
TOP HOLD
MAw
MBw
MCw
307
BAND-PASS FILTER
309
BAND-PASS FILTER
311
BAND-PASS FILTER
MA
MB
MC
306
301
302
304
305
A
B
C
D
A
B
C
D
A
E
D
H

FIG. 12


401
CPU
402
ROM
403
RAM
404
405
INPUT / OUTPUT INTERFACE
406
INPUT UNIT
407
OUTPUT UNIT
408
RECORD UNIT
409
COMMUNICATION UNIT
410
DRIVE
421
422
423
424